What is claimed is:

1. A method of etching an insulating film comprising the step of:

etching an interlayer insulating film comprised of an organic low dielectric constant film using a gas comprising NH_3.

2. A method of manufacturing a semiconductor device, comprising the steps of:

forming an organic low dielectric constant film on a substrate;

forming a silicon-containing insulating film on said organic low dielectric constant film;

removing a part of said silicon-containing insulating film to form a first opening; and

etching said organic low dielectric constant film using said silicon-containing insulating film with said first opening as a first mask;

wherein said step of etching said organic low dielectric constant film is carried out using a gas comprising NH_3.

3. The method of manufacturing a semiconductor device as claimed in claim 2, wherein said gas comprising NH_3 additionally comprises at least one of N_2, H_2 and O_2.

4. The method of manufacturing a semiconductor device as claimed in claim 3, wherein said silicon-containing insulating film comprises one of SiO_2, SiN, SiC, SiOF, an organic SOG, an inorganic porous film, and an inorganic low dielectric constant film.

5. The method of manufacturing a semiconductor device as claimed in claim 3, wherein said organic low dielectric constant film comprises at least one of a silicon-free organic film, a hydrocarbon-based organic low dielectric constant film, an aromatic-based organic low dielectric constant film, and a fluorine-containing resin film.

6. The method of manufacturing a semiconductor device as claimed in claim 3, further comprising steps of:

forming a photo-resist on said silicon-containing insulating film; and

removing a part of said photo-resist to form a second opening,

wherein said step of removing a part of said silicon-containing insulating film is carried out using said photo-resist with said second opening as a second mask, and

wherein said photo-resist is removed during said step of etching said organic low dielectric constant film.

7. The method of manufacturing a semiconductor device as claimed in claim 6, wherein an aspect ratio is higher than 1.5,

wherein the aspect ratio is given by a sum of a thickness of said organic low dielectric constant film and a thickness of said silicon-containing insulating film divided by a width dimension of said first opening.

8. The method of manufacturing a semiconductor device as claimed in claim 7, wherein said thickness of said organic low dielectric constant film is greater than 0.1 micrometers.

9. The method of manufacturing a semiconductor device as claimed in claim 7, wherein said thickness of said silicon-containing insulating film is less than 0.3 micrometers.

10. The method of manufacturing a semiconductor device as claimed in claim 7, wherein said width dimension of said second opening is approximately but not less than 0.2 micrometers.

11. A method of manufacturing a semiconductor device, comprising the steps of:

forming a first organic low dielectric constant film on a substrate;

forming a first silicon-containing insulating film on said organic low dielectric constant film;

removing a portion of said first silicon-containing insulating film to form a first opening;

etching said first organic low dielectric constant film using said first silicon-containing insulating film with said first opening as a first mask in order to form at least one through-hole penetrating said first organic low dielectric constant film and said first silicon-containing insulating film;

forming a first barrier metal on an entire inside surface of said at least one through-hole;

forming a first connection metal film on said first barrier metal film, so as to fill said at least one through-hole,

wherein said step of etching said first organic low dielectric constant film is carried out using a gas comprising NH_3.

12. The method of manufacturing a semiconductor device as claimed in claim 11, wherein said gas comprising NH_3 additionally comprises at least one of N_2, H_2 and O_2.

13. The method of manufacturing a semiconductor device as claimed in claim 12, wherein said first silicon-containing insulating film comprises one of

SiO_2, SiN, SiC, SiOF, an organic SOG, an inorganic porous film, and an inorganic low dielectric constant film.

14. The method of manufacturing a semiconductor device as claimed in claim 12, wherein said first organic low dielectric constant film comprises at least one of a silicon-free organic film, a hydrocarbon-based organic low dielectric constant film, an aromatic-based organic low dielectric constant film, and a fluorine-containing resin film.

15. The method of manufacturing a semiconductor device as claimed in claim 12, further comprising steps of:

forming a photo-resist on said silicon-containing insulating film; and

removing a portion of said photo-resist to form a second opening,

wherein said step of removing a portion of said first silicon-containing insulating film is carried out using said photo-resist with said second opening as a second mask, and

wherein said photo-resist is removed during said step of etching said first organic low dielectric constant film.

16. The method of manufacturing a semiconductor device as claimed in claim 15, wherein an aspect ratio is higher than 1.5, wherein the aspect ratio is

given by a sum of a thickness of said first organic low dielectric constant film and a thickness of said first silicon-containing insulating film divided by a width dimension of said first opening.

17. The method of manufacturing a semiconductor device as claimed in claim 16, further comprising steps of:

forming a second organic low dielectric constant film on said first silicon-containing insulating film and said first connection metal film formed on said first organic low dielectric constant film;

forming a second silicon-containing insulating film on said second organic low dielectric constant film;

removing a portion of said second silicon-containing insulating film to form a third opening; and

etching said second organic low dielectric constant film using said second silicon-containing insulating film with said third opening as a third mask in order to form at least a second through-hole penetrating said second organic low dielectric constant film and said second silicon-containing insulating film;

wherein said step of etching said second organic low dielectric constant film is carried out using a gas comprising NH_3.

18. The method of manufacturing a semiconductor device as claimed in claim 17, wherein said gas comprising NH_3 additionally comprises at least one of N_2, H_2 and O_2.

19. The method of manufacturing a semiconductor device as claimed in claim 18, further comprising steps of:

forming a second barrier metal film on an entire inside surface of said at least second through-hole interconnected with said first connection metal film and said first barrier metal film;

forming a second connection metal film on said second barrier metal film, so as to fill said at least second through-hole.

20. A semiconductor device having a multilayer wiring structure, comprising:

a substrate;

an interlayer insulating film comprising an organic low dielectric constant film disposed on the substrate and a silicon-containing insulating film disposed on said organic low dielectric constant film; and

a through-hole formed in said interlayer insulating film;

wherein said through-hole is formed by dry etching with a gas comprising NH_3 and has an aspect ratio that is larger than 1.5.